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C A N C E R:
A N E W M E T H O D O F T R E A T M E N T.



C A N C E R :

A NEW METHOD OF TREATMENT.

BY

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"He who attempts to make others believe in means which he himself despises, is a charlatan; he who makes use of more means than he knows to be necessary, is a quack; and he who ascribes to those means a greater efficiency than his own experience warrants, is an impostor."—LAVATER. *"Aphorisms on Man."*

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P R E F A C E.

THE main facts contained in this paper were brought before the late meeting of the British Medical Association. An abstract only of the cases, however, could be given, and this was further so greatly curtailed in publication that the purpose of the author, which was to bring the method of treatment and the results hitherto obtained, fully before the profession, so as to secure for it a more extended trial, was to a great extent defeated. The communication was favourably received, and many gentlemen expressed an intention to put in practice the treatment. The author, therefore, feels bound to give, more completely than he has hitherto had opportunity of doing, the results of his experience, and to state the conclusions to which he has been guided, so as to place his professional brethren as nearly as possible on a level with himself, and to enable them to carry out the method efficiently, without the necessity of proceeding *à tâtons*. Another reason for making public the treatment is the wish that if like favourable results as have been obtained by himself can be secured in any considerable proportion of cases of cancer, the sufferers from this terrible disease should have the benefit of it with the least possible delay.



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C A N C E R :

A NEW METHOD OF TREATMENT.

My attention was directed to the treatment of cancer by a case, given in detail later, of a lady who, at my advice, had twice submitted to the operation for the removal of cancer of the breast. The disease returned a third time, and, as is often the case, the tumour grew more rapidly than ever. Under these circumstances, further operation was not justified by any hope of permanent immunity, or even of temporary relief for more than a very brief period, and unless something could be done the usual miserable fate of victims to cancer awaited the patient.

The hypodermic syringe is now in the hands of every physician, and it seemed to me that by means of this instrument, some fluid might be injected into the tumour which might so far alter its structure, and modify its nutrition, as to retard or arrest its growth. Various substances presented themselves to my notice, and acetic acid was selected for the following reasons:—

1. This acid does not coagulate albumen, and might therefore be expected to diffuse itself through the tumour. The effect would thus not be limited to and concentrated in the point injected.

2. If it entered the circulation it could do no harm in any way, either by acting as a poison or by inducing embolism.

3. Acetic acid rapidly dissolves the walls and modifies the nuclei of cells on the microscopic slide, and might be expected to do this when the cells were *in situ*.

4. It had been applied with advantage to open cancer and to cancerous ulcerations.

The experiment was made, and it was found that acetic acid, though in healthy tissues it causes very severe smarting and burning, unless very strong, gives little pain when thrown into malignant structure. On the other hand it acts energetically on cancer, but has comparatively little effect on normal structures.

The cases on which these conclusions are based will be given in almost tedious detail, my object being to place my readers in a position to judge for themselves as to the merits and applications of the remedy proposed, in order that more extended observation may be brought to bear on it, and its true value ascertained.

CASE I.

RECURRENT SCIRRHUS OF BREAST—NECROSIS OF THE TUMOUR.

Mrs. H., about 60 years of age, strong and healthy, very stout, occasionally subject to rheumatic pains, consulted me early in the year 1864 respecting a tumour at the inner side of the right mamma. Two years before she had hurt her breast by falling heavily against the back of a chair. There was some swelling at the time, but this completely disappeared, and at an interval of some months, the tumour was detected. For some time it had been increasing in size, and there had been pain in it from time to time, of the peculiar lancinating character attending cancer, especially on changes in the weather. The nipple was retracted, and

the tumour was evidently malignant. It was removed in April, 1865, by Mr. Walter Coulson, the entire mamma being taken away, though only the inner part was involved. The pectoral muscle was implicated, and a portion of it had to be cut away. The diagnosis was confirmed by microscopic examination, and by the recurrence of the disease in little more than twelve months. Mr. Coulson again operated in August, 1865, when it was found necessary to remove several lymphatic glands, which had become large and hard.

Examined at the end of December, 1865; no return was perceptible, but in May, 1866, another tumour had appeared, just above the sternal end of the cicatrix, hard, irregular, nodulated, rooted, and adherent to the skin at its most prominent part. Its dimensions would be about two and a half inches by one and a half inch. There was much pain in it at times, and sensations of various kinds were experienced in the arm, more particularly a severe smarting in the axilla. No enlarged glands were detected there.

On the evening of May 18th the first injection was practised. In introducing the needle the skin implicated was avoided, in order that any results observed in it might be uncomplicated by local injury. The needle was entered through healthy skin at the sternal side of the tumour, about an inch from the adherent patch, and passed obliquely into the centre of the mass, where the point would rest at a vertical depth of about three quarters of an inch. Twenty or thirty minims of acid, diluted with from two to three parts of water, were injected. There was no pain beyond a little smarting from the escape of acid as the needle was withdrawn. A few drops of dark, bloody fluid oozed from the puncture.

Next morning, May 19th, there had been little pain during the night, and the patient had slept. Over the

part at which skin had become adherent to the tumour was a bulla, of the circumference of a sixpence, full of dark, bloody fluid. Nothing further was done at this time.

Four days after, on May 23rd, this adherent skin had become dry, hard, and horny in appearance, like the skin in dry gangrene, and the adjacent part of the tumour was softer. It was again injected in two places; the needle being passed through healthy skin, first nearly vertically to the outer side of the affected skin, next obliquely from above and externally. The quantity first thrown in was uncertain, from leakage of the syringe; at the second it was about thirty drops.

May 29th.—Learnt by letter that a bulla had formed, and burst, close to the old spot, and had dried up. There had been even less pain than at first.

June 7th.—So far as could be judged, the tumour had increased somewhat towards the shoulder; diminished on the sternal side. The skin which had originally been adherent, was dry and horny, and separated all round from the healthy skin by a line of ulceration, from which a little discharge exuded, not offensive, or in any way peculiar. The unaffected skin was moveable over the subjacent tumour, and a probe passed between them for half or three quarters of an inch in every direction, most freely downwards and outwards.

I injected through sound skin at the sternal side, passing the needle obliquely into the tumour. The acid was used somewhat stronger than on previous occasions, and from the sticking of the piston, was thrown in with a sudden jerk, causing a smarting pain. The injection was repeated at the outer side; here also a little pain was caused. Not more than twenty or thirty minims were injected in all.

9th.—A little swelling round the tumour, chiefly above, and some pain. The part rather tense, with faint redness. The needle was passed into the substance of the tumour, between

the dry slough and the skin, and twenty-five minims injected in two directions, a little of the fluid escaping.

10th.—A little pain in the night, extending towards the axilla; more swelling round the tumour, especially on outer side, with slight redness and tension; no increase of discharge; the arm stiff, and the patient unable to dress without assistance.

Ordered lint soaked in acid 3j to aq. 3j over the part, and a poultice upon this.

On the 12th a free discharge took place from the opening, the swelling and pain subsiding. For some days after this, a copious discharge escaped, with two or three portions of hard substance, which the patient was unable to tear up by means of needles. There was not the slightest offensive fetor with the discharge. Uncasy sensations continued to be felt in the arm.

26th—Again seen by me. The patient finding the tumour sensibly less, was in much better spirits. Her general health was very good. There was now but slight discharge; occasionally a little blood; no fetor at any time.

On external examination, the tumour seemed smaller in all its dimensions; the lips of the aperture had fallen together, and a little discharge, partly yellow serum, partly true pus escaped, and, after handling, a little blood. I now requested the attendance of the family medical man, Mr. Trotter, in order that the treatment might be carried on during my absence. The condition of things at this time was as follows: A probe passed into the aperture entered a large cavity, which extended on all sides, chiefly upwards, right and left. Its walls were for the most part formed by diseased structure, remaining from the circumference of the tumour, but this crust was not of sufficient thickness to receive a satisfactory injection; the fluid escaped either into healthy tissue, causing pain, or into the cavity, where it

uld have little effect. It was arranged that lint saturated with one part of acid to three of water should be passed into the cavity, and that any point which would permit of it should be injected. The acid applied by means of the lint was diluted, because it was expected that it would give pain at any point denuded of malignant structure. The result was that it proved ineffectual in removing what remained. On July 4th, Mr. Trotter wrote as follows: "There is an unnatural hardness along the whole upper border of the cavity, terminating abruptly on the sternal side, but gradually on the outer, indeed, I think the tumour is increasing in that direction. Into this outer portion, I injected on Monday evening (July 2) from within the cavity twenty minims of the acid, diluted with an equal quantity of water. The operation gave little pain either at the time or subsequently, and I think of repeating it on Thursday. The general health is about the same."

July 13th.—Again seen by me. The upper edge of the wound purplish in colour, and this and the outer edge hard from disease. The little finger passed into the cavity, found rather a thick crust of morbid structure on the outer side. A deepish excavation upwards and outwards with a thin crust of disease; upwards and inwards a thicker deposit; elsewhere no hardness existed. An injection was attempted into the substance of the external wall, both from within the cavity and through the skin, in both instances the fluid escaped into the cavity. Thirty minims injected into upper and inner wall; no pain.

14th.—Applied lint soaked in carbolic acid, one part to two parts of glycerine, to a limited portion of the wall distinctly infiltrated with disease. It caused only a sensation of warmth, and a whitish pellicle was seen to form wherever the acid touched.

15th.—A thin brownish pellicle existed over the part with which the carbolic acid had been in contact, and there was a slight brownish discharge. The cavity was again explored by the finger; the injection of the 13th had caused solution of the part into which the acid had been thrown. Severe smarting and uneasy sensations of various kinds had been felt in the arm. No glands could be felt, and there was no perceptible enlargement of the limb.

The cavity was ordered to be stuffed with lint soaked in the carbolic acid and glycerine. This caused severe pain which lasted some time, and it attacked the skin outside; it was soon discontinued. Undiluted acetic acid was then applied in the same way; this also gave pain, and did not seem to have much effect on the diseased part. Injections were now practised daily, and were said by Mr. Trotter on the 24th to have softened the harder portions considerably. He thought, however, that the disease was extending in the direction of the shoulder.

On the 31st a portion of skin, for some time noted to be involved, had sloughed, enlarging the opening.

The dressing with strong acid and daily injections gave much pain and excited inflammation; they were, however, continued. On August 4th, considerable hæmorrhage occurred, which was arrested by means of tinct. ferri. mur. All active treatment was now suspended.

August 6th. — Seen by me for the first time since July 15th, and carefully examined. A certain amount of slough remained to separate, but the rest of the wound exhibited a healthy surface, and no cancerous hardness could be found at any point. The energetic measures taken seem to have had the present result of removing entirely the remains of the disease. Time only will show whether it will again re-appear. On August 12th every part of the wound

was granulating, and the progress has been satisfactory up to the moment of writing. When last seen, on September 4th, it was nearly healed.

CASE II.

SECONDARY CANCER OF GLANDS IN AXILLA, WITH ENLARGEMENT OF THE ARM. CONTRACTION OF THE DISEASED GLANDS, AND DIMINUTION OF THE SWELLING IN THE ARM.

Miss B., now aged 65, consulted me in 1860 respecting a tumour in the left breast, which had been known to exist for three years, but had given rise to pain only within three months. The nipple was retracted, the skin involved and a flat, vaseular, smooth red tumour of the eircumferenee of a florin, projectet and threatened to uleerate.

The health was good. There was no family history of cancer. No known loeal injury.

The mamma was removed in June 1860, by Mr. Walter Coulson.

In 1864 she came again under my care, with a tumour to the axillary side of the old sear. It was small, and projectet through the skin, which was thinned, vascular, red and smooth. Enlarged glands could be felt behind the outer end of the elavicle extending downwards towards the axilla. A thin hard eord of lymphaties was traceable upwards from the tumour to the axilla, but no gland was discernible by examination in the axilla. The arm was swelling, and there was much diseomfort.

The tumour was removed without ehloroform, a degree of loeal anæsthesia being produced by the application of eold. Seen at intervals the gland first found behind the elavicle

moved gradually upwards in the neck, not enlarging materially in size. The swelling and discomfort in the arm increased.

June 7th, 1866.—Examined with a view to treatment if it should be deemed applicable.

The gland above mentioned still higher in the neck. A thick cord could be traced from the site of the last operation to the axilla, and where it reached the apex a tumour was discovered about the size of a nut; very hard; firmly rooted to a rib, and slightly puckering in the skin. No other gland distinctly made out. The arm much swollen, used with difficulty in the morning; the seat of peculiar sensations and of pain, varying much with the changes in the weather and the state of the general health. Certain movements bring on a sudden sharp pain about the axilla. The patient losing flesh. Some months ago suffered a contusion of the right breast, and has ever since had much pain in it.

8th.—Injected about twenty minims of dilute acid (one to three or four) into the gland in the axilla. No pain except when a little acid escaped into healthy tissue on a second introduction of the needle.

9th.—Less pain than before the operation. No inconvenience of any kind. Examined the part, a little redness round the puncture. No pain or tenderness.

26th.—On the whole less pain than before, and at first believed herself really better. She will not, however, indulge any hope of permanent relief without more decided evidence of improvement.

On examination, the gland, injected at the last visit, was not readily found, it was smaller and not so hard. It was recognised as the same, from its position on the cord described and by being rooted to a rib. The examination gave no pain. In the summit of the axilla a patch of skin was red, moist,

and covered with a sebaceous-like secretion. No discharge had been noticed, and no smarting experienced.

On further careful exploration a mass of hardened glands was felt from the axilla, extending upwards, close to the chest walls towards the clavicle. It could be made out also through the pectoral muscle. As its position and size could thus be determined by one hand in the axilla, and the other on the pectoral, encouraged by the results in the case of the more accessible gland I proceeded to inject. The needle was passed into the mass to a depth of about three quarters of an inch, and forty minims of dilute acid was thrown in. There was absolutely no pain at the time, and next day the patient gave a picnic, which had been arranged before my visit.

Seen again on July 14th. Her own account was that she was certainly not worse; there was no increasing difficulty in the movement of the arm, rather less perhaps. She thinks there is a return of healthy feeling in the arm, but the sensations formerly complained of, as of water running up and down in the arm are still present.

On examination the gland first come at was certainly smaller than when first injected, and the mass was felt less distinctly both in the axilla and through the muscle. Handling gave no pain. Turning then to the arm the upper arm was remarkably soft and flabby, larger than the other, but in a very different condition from its state when previously examined, giving at once the idea that it had been the seat of exudation which had undergone resorption. The fore-arm was large and tense.

As this result if permanent would be perfectly satisfactory to me, I refrained from further interference. The fore-arm was measured.

August 8th.—The glands seem to have shrunk considerably,

and cannot be felt through the pectoral muscle. The upper arm is in the same soft flaccid state as at the last examination; the fore-arm is softer along the pronator aspect, and measures half an inch less in circumference. There is a little redness, and superficial soreness in the axilla, and the skin is moist, but there has been no discharge. The patient thinks she uses the arm a little better, and is improving in health.

Not seen since.

CASE III.

CANCER OF RECTUM—REMOVAL OF OBSTRUCTION, AND RELIEF OF SYMPTOMS.

E. W., æt. 35, married, and having three children; previously strong and healthy: the sixth of a family of ten, all living, and healthy. Cancer unknown among her relatives. Came as an out-patient to St. Mary's Hospital, May 28th, 1866.

At Christmas last she began to have pain in the rectum and to lose blood; she had a discharge also, which she described as slimy, thick, and very offensive. At times, for three or four days together, she would lose blood per anum every ten minutes, if she stood or walked. She could not sit with comfort.

She was much reduced in flesh and strength; looked pale and worn, and her face gave evidence of much suffering.

On examination a tumour was found in the rectum, which seemed to spring from the anterior wall, and to project into the canal, occupying it completely. It was hard, irregular, nodulated, and at one part it felt as if ulcerated. In the vagina a hard tumour could be felt bulging in the posterior wall, but the mucous membrane was not involved.

On June 1st I attempted to inject the tumour, but the

needle was too short and great smarting was experienced from contact of the acid with the mucous membrane of the rectum.

5th.—Having procured a longer needle, I injected about 3 ss of acid diluted with one and a half or two parts of water into different parts of the tumour. There was no great pain either in introducing the needle, or when the acid was injected. I detained her for ten minutes, but nothing was felt beyond a little smarting, not at all severe.

11th.—For two or three days after the operation, a sense of weight and fulness was experienced, but less pain than before. There had been much discharge of a slimy and purulent character, but no blood.

On examination it was found that instead of the tumour springing from the anterior wall, as at first supposed, it involved the entire circumference of the bowel, and what had been taken for the ulcerated apex was really the narrowed canal, now enlarged so that the finger passed into it, just filling it. About 3 ss of acid, rather more dilute than before, was injected into two points. Smarting was caused once when the needle was not fairly in the diseased structure.

15th.—Thinks herself better. A little gnawing pain for two days after the operation. Now gone. The motions pass more easily; no blood.

On examination the edges of the aperture softer and more rugged; the mouth larger; the canal higher up, about the same. Injected about 3 ss of rather stronger acid (about equal parts of acid and water). Trying to pass it into the posterior part of the tumour a little fluid escaped and caused much smarting: in the diseased structure it gave no pain.

19th.—Much discharge on the 16th and 17th, with some pain; now no pain, no blood. She and the friend who always accompanies her, consider her better in all respects

from the cessation of her previously severe suffering. She looks better.

Tumour not felt to be smaller in circumference, as the finger is passed round it; but the anterior part, into which the injections have been mostly made, not so prominent. The finger passed readily quite through the stricture, reaching what seemed to be healthy mucous membrane beyond. Twenty minims of acid and water, in equal parts, thrown into anterior part, and an equal amount into posterior part. No pain beyond smarting from escape of a little acid as the needle was withdrawn.

22nd.—Similar accounts. A little pain for one or two days, with much discharge and solid portions. On examination a great gaping aperture, surrounded on all sides with an irregular hard nodulated rim. The tumour as felt per vaginam about the same. Injection in two places.

29th.—Feeling well. Passage free, no blood, no discharge. Injection not successful; the fluid escaped, and reaching the mucous membrane caused smarting.

July 3rd.—About the same. Attempted to employ the speculum ani as a guide in injecting—failed. Was not successful in the usual way, the excavations caused by previous injections allowing the fluid to escape.

6th.—Considers herself better, giving as reasons, the lessened pain, greater freedom in passing the motions, diminution and altered character of discharge. Still has uneasy sensation on sitting down. Has passed a little blood during the past week.

Examined very carefully. The anterior and right margin of the aperture thinned, the posterior and left portion of the circumference thicker, being less accessible. The finger does not readily pass through the stricture, because a projection from the posterior wall has fitted itself into the hollow

excavated in the anterior wall. Into this projection I injected forty minims of acid + 2 water—no pain. An attempted injection into the anterior part had to be abandoned on account of escape of fluid and consequent smarting.

12th.—Pain and discharge as usual for two days. The part last attacked hollowed out into a large cavity, and the finger passed readily into the stricture. The tumour was found to have extended somewhat as felt per vaginam.

I determined now to try as an adjunct the application of acid to the surface of the diseased structure. To effect this a piece of lint, dipped in acid and well compressed, was passed by means of the speculum beyond the sphincter, and then, as quickly as possible, pushed into the stricture by the finger; undiluted acid was now slowly injected into the lint, which, having been soaked in acid, readily took it up. Wet lint was then adjusted to retain the first pledget *in situ*, and some solution of carbonate of soda was passed into the rectum to neutralize any acid which might escape.

There was no pain at the moment, but walking apparently displaced the lint, and on her way home burning pain came on, and lasted for some time. There was much discharge afterwards; no blood. On the 16th, the passage seemed more free. An injection of thirty minims was practised, and cotton wool with strong acid applied as before, additional precautions being taken.

19th.—Feeling better than at any time since she began to be ill. No pain to speak of after the last operation. Not much discharge, but a little blood. Bowels open rather frequently, passage easy. Can sit now without discomfort.

The details of the examination need not be given. Forty minims of dilute acid were injected in two places, and the cotton wool and strong acid applied as before.

22nd.—Feeling and looking better. Injected in two parts,

but attempting to introduce the cotton wool, and not succeeding at once, the wool also containing rather more acid than on previous occasions, smarting and involuntary contraction of the sphincter came on, which prevented anything being done. Solution of carbonate of soda was therefore freely injected into the rectum, and the patient was sent home.

26th.—There was a little smarting after the last visit, and there is still soreness about the orifice of the anus, which, with the consequent contraction of the sphincter prevented further interference at this moment. She was feeling comfortable, and walked without pain; passed her motions freely, and her aspect was good. She was told not to come for a week.

August 2nd.—The external soreness gone. On two occasions during the week there has been a little of the old pain, and the motions do not pass so readily; the stools are frequent, but small. She still sits with more comfort.

The canal was found to be narrower. No increased extension of the disease as felt from the vagina. Two injections of forty minims, one anteriorly, which gave a little pain in the genitals; another towards the right side, where unusual resistance to the entry of the needle was met with.

This patient is still under treatment. By injection once a week the passage is kept open, and the pain which was rapidly wearing out her strength is relieved. She considers herself nearly well, but the disease is not eradicated, nor can this result be looked for.

I am favoured with notes of another case of cancer of the rectum, in which this treatment was tried by Mr. Alfred Cooper, Surgeon to St. Mark's Hospital for Diseases of the Rectum.

The disease was of long standing; the patient's sufferings were extreme, and he was in the last stage of exhaustion.

There was evidence also of extension of the disease to the liver; no hope could be entertained of saving life, but it seemed possible that some relief might be given, and at the worst an opportunity would be afforded, by post-mortem examination, of ascertaining the effects of the injection.

I saw the case with Mr. Cooper on July 6th. On examination the finger came upon a mass of disease apparently filling the entire pelvis, and the canal by which fecal matter passed could not be made out. About eighty minims of acid were injected at twice. The manipulations and the entry of the acid gave pain, and he was weak and ill afterwards. A long drive in a cab contributed to this, as he was exhausted before any examination was made. The injection was repeated on the 13th. He experienced no marked relief till, on August 28th, he passed a solid substance, described by himself as "being large enough to cover a crown piece, and as tough as chamois leather," after which he suffered less. His strength, however, was exhausted, and he died on September 7th.

On post-mortem examination the obstruction in the rectum was found to have entirely disappeared, and no trace of the tumour was to be found. The liver and other abdominal organs were extensively affected with cancer.

CASE IV.

CANCER OF TONGUE.

W. S., a farm-labourer, æt. 54, was admitted into St. Mary's Hospital on July 20th, 1866.

Rather more than twelve months since he found the right side of his tongue was sore. It became gradually worse, and about Christmas, 1865, he was compelled to seek advice, but

obtained no relief. He had pain day and night, and could not sleep; for some time he had not been able to swallow solids at all; fluids he got down with pain and difficulty. He was, in consequence, becoming very weak. He spoke indistinctly and with pain. There was no appearance of cancerous cachexia about him.

His mother is said to have had cancer of the breast, which was "burnt out," and did not return. He has been a smoker, and the teeth on both sides are worn.

The right side of the tongue was found to be raised, swollen, very hard, and extremely painful when handled. The lateral border and adjacent part of dorsum were smooth and red. The under aspect of the tongue and the floor of the mouth seen to be the seat of a foul ulcerated surface, irregular, nodulated, and hard to the touch, and covered with a greyish soft exudation. The fetor was very offensive. The hardness extended from the tip to the root of the organ, and very far back a hard lump could be felt. The ulceration had undermined the tongue considerably. An enlarged gland was seen near the angle of the jaw. Lint, saturated with acetic acid was ordered to be applied.

21st.—On careful examination, with a view to injection, it was seen that there was no distinct and defined tumour, but a thick indurated base to the ulcer described. Into this the needle was carried near the apex of the tongue, for a distance of half to three quarters of an inch, parallel with the surface, and thirty to forty minims of acid, with two parts of water injected. It gave very little pain. Attempting to repeat this near the base, it was felt that the needle entered healthy structure, and when the acid was expelled it caused much pain. A few drops only were here injected. The surface was dressed with undiluted acid, which caused smarting for a time.

25th.—Decidedly easier. Has aching pain at night only. He can swallow better. The tongue is certainly softer, the ulcerated surface cleaner and more even, the fetor almost gone. He drew attention to the gland, which he said was smaller. The acid had been applied twice daily to the surface, causing severe smarting for a short time.

26th.—An injection practised, one acid to three water, in the same way as before. No pain.

28th.—Injection, but it escaped into mouth. Dilute acid, to be used in dressing surface, and to be applied repeatedly during the day.

August 1st.—No marked advance in condition since the end of the first week. Has still pain at night. Does not swallow solids. Injected with doubtful success, the acid escaping.

15th.—Margin of tongue much reduced in thickness, and quite soft. The ulceration has extended forwards somewhat, and the surface is irregular but clean, and there is no fetor. The difficulty of swallowing and pain at night are still complained of.

Injected twice where there seemed to be most diseased structure, but the fluid escaped upon the surface.

I injected also the enlarged gland at the angle of the jaw, using acid, diluted with three parts of water. The toughness of the skin made penetration difficult and painful, and the injection also gave much pain, but apparently the density of the diseased structure caused the fluid to return by the side of the needle for a portion escaped externally, bringing with it cheesy-looking substance.

19th.—Swelling followed the injection, and pain was felt for some time. The tongue about the same.

This patient left the hospital at the end of the month. The surface of the ulceration was clean, and scarcely any hard

base existed, but it had extended towards the tip of the tongue. This organ was more moveable. The glands remained large. He is to come as out-patient.

These cases sufficiently establish the correctness of the antieipation formed as to the action of acetic acid—that no unfavourable results arise from absorption of the acid into the blood—that it permeates every part of the tumour more completely than would any fluid coagulating albumen—and that it acts energetically on cancerous structures. Even in a comparatively dilute state, and when it cannot be looked upon as in any sense caustic, it breaks down the substance of malignant tumours. The process seems more like solution than sloughing or suppuration, and is not necessarily attended with pain or constitutional disturbance. The first case furnishes the most striking illustration of the remarkable influence of acetic acid. The result of the first injection went beyond my anticipations, and produced an effect I had not antieipated, and did not at the time desire. As I could see the patient only at rather long intervals, the caution always necessary in early experiments of this kind had to be redoubled. In a similar case a much shorter time would now suffice to bring about the same result. It is certain, however, that different cases will demand special modifications of the treatment; some may require stronger acid, others weaker; some long intervals between the injections, others short; in some it may be better to throw in the acid quickly; in others very gradually. Those points can only be settled by experience.

It has not yet been demonstrated that a malignant tumour may be entirely and cleanly rooted out at once. At its periphery, where diseased joins on to healthy structure, it has more vitality than in the centre, and in the case referred to, great difficulty was experienced in removing the portions

left behind when the mass of the tumour had been destroyed. Much more pain was given in this attempt than in the previous proceeding. A considerable portion of the wall of the cavity was, however, from the first, denuded of malignant structure, and there seems to be no reason why this should not have been the case at all points, had the injections been more complete. This result should always be aimed at when the removal of an unbroken tumour is undertaken.

As to the pain resulting from the injection of acetic acid, the difference between cancer and healthy tissue was remarkable in all the cases. In the first: acid, which had caused scarcely any pain when injected in considerable quantity into the substance of the tumour gave rise to acute smarting, when a single drop entered the subcutaneous connective tissue. This was still more strikingly shown in the case of the axillary glands. In the cancer of the rectum the occurrence or not of pain was an invaluable indication as to whether the point of the needle was in the substance of the tumour, or in healthy structures, or free in the canal after passing through a nodule of cancer, or gliding over its surface. The difference was by no means so marked in the case of epithelial cancer of the tongue, and in another instance of this form of cancer I have seen the same thing. Within the last few days I have also found injection of a solid tumour to give considerable pain, and Mr. I. B. Brown, jun., has stated to me that this has occurred in a case under his care, so that immunity from suffering is not always to be counted upon.

The result in the second case, should it be permanent, which cannot be foreseen, and should it be obtainable in any considerable proportion of cases of cancer, I look upon as of far greater import than the necrosis, or destruction by any

process of malignant tumours. It was with the hope of some such result that I started my experiments, viz.: that the vitality and nutrition of cancerous growths might be so far modified as to check or arrest their progress and dissemination without necessarily causing their suppuration or sloughing.

The theoretical grounds for such an expectation are as follows:—

1. Cancer owes its malignancy, not to any peculiarity of chemical composition, but to its characteristic structure. It is made up of cells (to employ a terminology almost antiquated), which, retaining more or less the foetal type, retain also the foetal capacity for indefinite multiplication, but do not undergo development into perfect tissues. To alter these cells will be to put an end to their power of dividing and multiplying, and consequently to arrest the growth of the tumour.

2. In acetic acid we have an agent which, on the microscopic slide, rapidly effects important changes in cells of every kind, dissolving the cell-wall, and affecting the nucleus. Not coagulating albumen it may diffuse itself through a tumour, and reaching every part equally it may probably produce similar results when the cells are *in situ*.

Experimentally, it has been seen that acetic acid does diffuse itself as was anticipated, and a striking proof was afforded of this fact in the very first injection practised. Again, it has been found that it attacks the cells so effectually as completely to destroy their vitality and produce solution of the tumour. The point to be determined is, whether it may not be so applied as to stop short of this result and alter the cells, impair their vitality, modify their nutrition, or even dissolve or destroy them, but leave any fully organised tissue, or remains of the invaded structures.

The tumour would, in this case, cease to spread, and would shrink and contract.

It will be some time before this can be distinctly proved to be attainable. In Case II. it seems to have been effected. The glands injected have shrunk, as is shown by the diminution in the swelling of the arm. A mere examination of the glands themselves in so inaccessible a situation as the axilla, would have left much uncertainty as to the fact, but the change in the arm pointing to removal of pressure from the vein is scarcely open to doubt.

In considering the application of this treatment to various cases, there are two distinct results which may be aimed at: the yet uncertain effect last spoken of, arrest and withering of the tumour, or its death and removal.

The former might be sought in any example of accessible tumour, in which the skin is not involved. Cases of scirrhus would seem to be those in which success might, with most reason, be hoped for, as more fibrous structure is found in them, and a tendency to shrinking and withering is often seen in this class of tumours.

The destructive effects may be looked upon as always in our power—whether this should be resorted to in all or in many cases, must be determined by experience. In cancer of the rectum, it offers a valuable means of removing obstruction and relieving pain. In the case described, it has lengthened life. It may, perhaps, do more. In cancer of the uterus it will, probably be found of equal or greater service, and the application will certainly be easier than to disease of the rectum.

In epithelial cancer of the integument, or of the tongue, a difficulty is met with from escape of the fluid at the surface. Experience alone can determine the value of the injection of

acetic acid, or its employment in other ways in these cases, as compared with other methods practised.

Speaking generally, wherever treatment by caustics of whatever kind is to be preferred to removal by the knife, this method would seem to offer greater facility of employment, and to be attended with less pain. In subcutaneous tumours, if the skin were not involved, it might probably be necessary to make an incision when the cancer had been softened down, but in these cases arrest should first be attempted. When a solid tumour has invaded the skin, this will slough and leave an opening through which the *débris* may escape. In open cancer the fungous masses might be removed, and the irregular, foul, and painful ulcer, with its offensive discharge, be replaced by a comparatively clean surface, without feter or pain.

I am not prepared to lay down precise rules for the employment of the acid, but my experience inclines me to the use of a large quantity of dilute acid, rather than of a smaller proportion in more concentrated form. The strongest acid I have used has been composed of equal parts of water and of the strong acetic acid of the Pharmacopœia; the weakest, one part to four or five.

The injection should be gradual, especially when the tumour is dense, as pain may be inflicted either by escape of the acid by the side of the needle, or by the tension caused by the fluid forced in. The indication I shall take for my guidance will be pain. When this attends any operation, I should reduce the strength of the acid and the force of the injection until it is no longer severe, and only when this has proved inoperative go on to more energetic measures. Dr. Richardson's ether spray apparatus will be most useful in preventing pain.

I close this paper by expressing my belief that the acetic acid treatment of cancer will be found to be a valuable palliative remedy, if not in some instances curative; and that it will be applicable to cases which have hitherto been beyond the reach of any remedial measures. I am aware that the "Cancer Curer" is the accepted type of impostors and quacks; but as I give with the conclusions I advance the experiments on which they are founded, I do not fear to come within any of the definitions quoted on the title-page of this pamphlet. I venture to hope, further, that the publication of this method of treatment will be a step towards rescuing cancer from the domain of irregular practice and secret remedies.